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REMARKS

The Office Action dated December 15, 2005, has been received and reviewed.

Claims 21-45 and 69-82 are currently pending in the above-referenced application. Of these, claims 21-27, 29-37, 40-45, 69-74, and 76-80 have been considered and stand rejected. Claims 28, 38, 39, 75, 81, and 82 have been withdrawn from consideration pursuant to the election dated September 15, 2005, in response to a species election requirement in the above-referenced application.

New claims 92-111 have been added.

Reconsideration of the above-referenced application is respectfully requested.

Objection under 35 U.S.C. § 132(a)

The amendment filed on September 15, 2005, has been objected to under 35 U.S.C. § 132(a) for purportedly introducing new matter into the specification of the above-referenced application. Specifically, it has been alleged that the phrase "programmed material consolidation" is new matter.

It is respectfully submitted that introduction of the phrase "programmed material consolidation" into several claims of the above-referenced application does not amount to the introduction of new matter into the above-referenced application. This is because the above-referenced application discloses use of stereolithography, which is known to those of ordinary skill in the pertinent art to be an example of a process in which unconsolidated material is consolidated under control of a program; *i.e.*, by a programmed material consolidation process. *See, e.g.*, paragraph [0050] of the as-filed specification.

As the as-filed specification of the above-referenced application provides clear support for the recitation of "programmed material consolidation" in claims of the above-referenced application, the amendment of several claims to recite "programmed material consolidation" does not amount to the introduction of new matter into the above-referenced application.

Accordingly, it is respectfully requested that the new matter objection under 35 U.S.C. § 132(a) be withdrawn.

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Rejections under 35 U.S.C. § 112, First Paragraph

The rejection of claims 21-27, 29-37, 40-45, 69-74, and 76-80 under 35 U.S.C. § 112, first paragraph, is basically the same as the new matter objection to the amendment of September 15, 2005. Specifically, claims 21-27, 29-37, 40-45, 69-74, and 76-80 have been rejected because independent claims 21, 35, and 69 include the phrase "programmed material consolidation," whereas the as-filed specification of the above-referenced application merely provides an example of stereolithography.

Notably, the exact language recited in the claims need not be found verbatim in the originally-filed specification to be supported by the originally-filed specification. M.P.E.P. § 2173.05(f) (which applies to 35 U.S.C. § 112, second paragraph, indefiniteness rejections, provides "[t]here is no requirement that the words in the claim must match those used in the specification disclosure.").

As indicated above, paragraph [0050] of the as-filed specification clearly indicates that "programmed material consolidation" occurs during stereolithography, which has been provided merely as an example of a process that may be employed, and not to limit the scope of the claims of the above-referenced application. Although paragraph [0050] does not use the exact phrase "programmed material consolidation," it is clear from as-filed paragraph [0050] that previously unconsolidated material may be at least partially consolidated under control of a program. Therefore, the as-filed specification of the above-referenced application provides an adequate written description for inclusion of the phrase "programmed material consolidation" in independent claims 21, 35, and 69. As such, each of these claims, as well as each of claims 22-27, 29-34, 36, 37, 40-45, 70-74, and 76-80 depending therefrom, complies with the written description requirement of the first paragraph of 35 U.S.C. § 112.

It is respectfully requested that the 35 U.S.C. § 112, first paragraph, rejections of claims 21-27, 29-37, 40-45, 69-74, and 76-80 be withdrawn.

Rejections under 35 U.S.C. § 112, Second Paragraph

Each of claims 26-27, 31-34, 36, 37, 43-45, 73, 74, and 77-80 has been rejected under 35 U.S.C. § 112, second paragraph, for reciting subject matter that is assertedly indefinite.

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Specifically, it has been asserted that one of ordinary skill in the art would not understand what is meant by the term "substantially," as used to modify the terms "planar" (claims 26, 27, 37, 73, and 74), "cured" (claims 31, 32, 43, 77, and 78), and "free" (claim 36), and the phrase "the same degree of finishing" (claim 45).

It is respectfully submitted that one of ordinary skill in the art would readily understand, in view of the guidelines provided in the specification of the above-referenced application, that meaning and scope of the term "substantially," as used in each of these contexts. See, e.g., M.P.E.P. § 2173.05(b)(D). For example, paragraphs [0032], [0036], and [0038] provide guidance as to the scope of the phrase "substantially planar," paragraphs [0053] and [0055] provide guidance as to the scope of the phrase "substantially cured," paragraph [0060] provides guidance as to the scope of the phrase "substantially free," and paragraph [0060] provides guidance as to the scope of the phrase "substantially the same degree of finishing."

As one of ordinary skill in the art would readily understand the scopes of the objected-to phrases, it is respectfully submitted that each of claims 26-27, 31-34, 36, 37, 43-45, 73, 74, and 77-80 complies with the definiteness requirement of the second paragraph of 35 U.S.C. § 112.

Withdrawal of the 35 U.S.C. § 112, second paragraph, rejections of claims 26-27, 31-34, 36, 37, 43-45, 73, 74, and 77-80 is respectfully requested.

Rejections under 35 U.S.C. § 103(a)

Claims 21, 22, 24, 26, 27, 35-37, 40-42, 45, 69, 71, 73, 74, and 76 are rejected under 35 U.S.C. § 103(a) for being drawn to subject matter which is assertedly unpatentable over the subject matter taught in U.S. Patent 5,121,329 to Crump (hereinafter "Crump"), in view of teachings from U.S. Patent 5,545,367 to Bae et al. (hereinafter "Bae").

The standard for establishing and maintaining a rejection under 35 U.S.C. § 103(a) is set forth in M.P.E.P. § 706.02(j), which provides:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference

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or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

It has been asserted that col. 20, lines 24-41 (part of claim 36) of Crump teaches a release article for stereolithographically fabricated objects. While col. 20, lines 24-41, of Crump provides no teaching or suggestion regarding the release of an object from a platen, col. 9, lines 1-26, of Crump does. At col. 9, lines 1-26, Crump teaches that a wire mesh substrate 108, upon which an article is fabricated, may be secured to base plate 110 with double-faced adhesive tape. Col. 9, lines 4-6. Once the article is fabricated, the substrate 108 is removed from the article (col. 9, lines 13-17), then from the base plate 110 (col. 9, lines 18-23). As the mesh substrate lacks a planar surface, consolidated material impregnates the mesh and, thus, a portion of the surface of an object that has been formed on the substrate 108 must be removed. *Id.* Crump also teaches that an article may be fabricated upon a substrate 108 that comprises water soluble wax. Col. 9, lines 24-26.

The cited portions of Bae (col. 2, lines 24-42) also lack any teaching or suggestion of a substrate upon which objects may be fabricated and that may be readily removed from fabricated objects. Instead, Figs. 13a-13c and col. 20, lines 14-41, of Bae teach a release apparatus that includes a tape with an adhesive side and a nonadhesive side. Col. 20, lines 24-29. The adhesive side is configured to be secured in place over a transparent plate that includes raised areas and fluid- or air-filled depressed areas. *Id.*; col. 20, lines 14-20. Once an object has been fabricated upon the nonadhesive side of the tape, it may be removed from the tape while the tape remains secured to the transparent plate. Col. 20, lines 29-32.

It is respectfully submitted that a *prima facie* case of obviousness has not been established against any of claims 21, 22, 24, 26, 27, 35-37, 40-42, 45, 69, 71, 73, 74, or 76. In particular, it is respectfully submitted that neither Crump nor Bae, taken either together or individually, teaches or suggests each and every claim element.

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With respect to independent claim 21, as amended and presented herein, Crump and Bae both lack any teaching or suggestion of a substrate with an upper surface that, after the substrate has been removed from a platen of programmed material consolidation equipment, is configured for ready removal from a surface of at least one object without substantially altering that surface. Rather, the teachings of Crump and Bae are both limited to release elements that are configured to be removed from a fabricated object before or as they are removed from a platen over which the object was fabricated.

Similarly, with respect to amended independent claim 35, neither Crump nor Bae teaches or suggests an object that has been fabricated by a programmed material consolidation process and that includes an unfinished surface with substantially the same surface features as a corresponding surface of the object in finished form, an object release including a planar object-securing surface element on the surface of the object, and adhesive that secured a platen-securing surface of the object release element to a platen of programmed material consolidation equipment during fabrication of the object. Again, Crump and Bae both lack any teaching or suggestion that the release elements thereof may be present on a fabricated object. Instead, Crump and Bae both teach that release elements are removed from fabricated objects prior to or during removal of the fabricated objects from a platen.

As for the apparatus of amended independent claim 69, Crump and Bae both lack any teaching or suggestion of a substrate that comprises a material that will adhere to an object during fabrication thereof and which may be pulled from the object once the object has been fabricated and the substrate has been removed from a platen of programmed material consolidation equipment.

As the teachings of Crump and Bae, taken either in combination or separately, do not support a *prima facie* case of obviousness against any of amended independent claims 21, 35, or 69, it is respectfully submitted that the subject matter recited in each of these claims is, under 35 U.S.C. § 103(a), allowable over the subject matter taught in or suggested by both Crump and Bae.

Claims 22, 24, 26, and 27 are each allowable, among other reasons, for depending directly from claim 21, which is allowable.

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Each of claims 36, 37, 40-42, and 45 is allowable, among other reasons, for depending directly or indirectly from claim 35, which is allowable.

Claims 71, 73, 74, and 76 are each allowable, among other reasons, for depending directly from claim 69, which is allowable.

Withdrawal of the 35 U.S.C. § 103(a) rejections of claims 21, 22, 24, 26, 27, 35-37, 40-42, 45, 69, 71, 73, 74, and 76 is respectfully requested.

New Claims

New claims 92-111 have been added. New claims 92, 99, 105, and 109 are independent claims that include elements that are neither taught nor suggested in Crump or Bae (see, e.g., claims 23, 29, 31, and 70, without limitations from intervening claims). It is respectfully submitted that none of new claims 92-111 introduces new matter into the above-referenced application.

ELECTION OF SPECIES REQUIREMENT

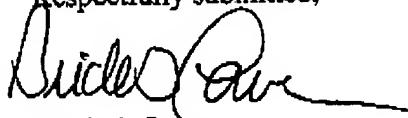
It is respectfully submitted that at least independent claims 21, 35, and 69 remain generic to all of the species of invention that were identified in the Election of Species Requirement in the above-referenced application. In view of the allowability of these claims, claims 28, 38, 39, 75, 81, and 82, which have been withdrawn from consideration, should also be considered and allowed. M.P.E.P. § 806.04(d).

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CONCLUSION

It is respectfully submitted that each of claims 21-45, 69-82, and 92-111 is allowable. An early notice of the allowability of each of these claims is respectfully solicited, as is an indication that the above-referenced application has been passed for issuance. If any issues preventing allowance of the above-referenced application remain which might be resolved by way of a telephone conference, the Office is kindly invited to contact the undersigned attorney.

Respectfully submitted,



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